

WHY SO MANY CARELESS BOOKS ON TREES
AND OTHER PLANTS?

M. L. FERNALD

EVERYONE is interested in trees. The poet and sentimental writer adore them; but we do not expect precision from them, and their ebullitions should not be looked upon either as science or as factual. Science aims, at least, at the truth and its unravelling, and the student of so-called applied science professes to have a similar standard, tempered by the practical. I have more than once risked my peace of mind by publishing criticisms of some of the books on trees or other plants, and have been very obviously disliked by the authors for so doing. But still the trees are a tempting subject, both for those who admit that, for dramatic effect, they alter the facts, and by others who seem to be stating facts but who, obviously, have done altogether too little verification from the more exact and less spectacular sources which are available.

The special volume which has just come to hand and which is bound to puzzle those who have a fuller knowledge of the ranges of our trees, is a very attractive book with abundant and mostly well executed drawings of distinctive parts of our trees, and abundant and too often misleading maps of their supposed ranges. This is *North American Trees* by Richard J. Preston.¹ As said, the illustrations are mostly to be praised, some by artists specially employed for this work, some borrowed from other publications. My trouble is chiefly with the maps. The first map in the book, "*Forest Regions and principal types of Forest in the United States*," at once makes some of us gasp. As one born in the "Pine-tree State," named for the White Pine, *Pinus Strobus*, for two centuries and more considered the most important timber-tree of New England, New York and adjacent Canada, it comes as a shock to see among the "*Principal types of forest*" that the "White, red and jack pine" "type" is restricted to northern Minnesota and areas in Wisconsin and Michigan. In New England and eastern Canada *Pinus Strobus* is a tree usually of

¹ RICHARD J. PRESTON. *North American Trees*. 371 + lv pp., 160 plates. Iowa State College Press.

good soil, *P. resinosa* of dry and siliceous soil, and *P. Banksiana* (Jack-Pine) of the most hopelessly barren soil. There they rarely if ever mingle. The map (p. 8) showing EASTERN WHITE PINE, indicates it as extending across the area where it was so long considered the only timber tree of value. Newfoundland is left blank, but could have been dotted.

It is the maps of ranges of many of the individual species which will cause the local and competent authorities on special states or adjacent provinces to wonder. Passing the Spruces and the Larches for the moment, we will start with the BALSAM-FIR, *Abies balsamea*. All New England and New York (including Long Island) are dotted, but if the Fir occurs in southeastern New York south of the higher Catskill Mts., on Long Island, in southern or eastern Massachusetts (except in the northeastern corner of the state), it must have been planted.

Similarly, the NORTHERN WHITE CEDAR, *Thuja occidentalis*, is shown as covering all Pennsylvania, New Jersey, New England and Nova Scotia. In 1919, however, in a somewhat detailed study², of the occurrence of that species, I wrote:

“In Massachusetts *Thuja occidentalis* is confined to the calcareous upper Connecticut Valley and to the Stockbridge limestone region of Berkshire County.

“In Connecticut it is indigenous only in the limestone region of northern Litchfield county: ‘Canaan, on a limestone ridge and in a near-by swamp (C. K. Averill), Salisbury, rocky hillside and at another locality in a deep swamp (Mrs. C. S. Phelps).’

“In southern New York *Thuja occidentalis* was formerly known on the lower Hudson: ‘At Verplanck’s Point . . . on . . . fine bluffs of palaeozoic limestone,’ where it was associated with other calcicoles, *Anemone canadense*, *Arenaria stricta*, *Arabis lyrata*, etc.; and at other stations lower down the Hudson (now presumably extinct).

“In New Jersey the only authentic records are from the lower Hudson, the old records from farther west, having been doubted. In other words, in Connecticut and southeastern New York and adjacent New Jersey *Thuja occidentalis* occurs only in the localities indicated so clearly on Dana’s map of limestone areas of the region (including the Palisade trap range), or as Dana concisely defines it ‘the belts of limestone . . . which extend southward in eastern New York and from Canaan and Salisbury in Connecticut’ (In Connecticut *Thuja* is known only from Canaan and Salisbury!).

“In Pennsylvania, according to Porter, *Thuja* is ‘Generally escaped from cultivation, but not definitely known in the native state’; and Long likewise emphasizes that the tree ‘appears to be quite unknown in a native state in the wide mountain area of Pennsylvania’.”

² Fernald, Lithological Factors limiting the Ranges of *Pinus Banksiana* and *Thuja occidentalis*, RHODORA, xxi. 42–67 (1919)—Contrib. Gray Herb. n. s. no. LVIII.

Subsequently, I am informed, *Thuja* has been found as a native along the mountains of Pennsylvania but that hardly justifies the impression that it covers the state. At the same time (map, l. c. p. 45) I showed its occurrence over a large area west of Hudson Bay; and its extreme localization in Nova Scotia is well known.

Juniperus virginiana, EASTERN RED CEDAR, appears from the map (p. 108) to extend northeastward along coastwise Maine into southern New Brunswick and the length of mainland Nova Scotia. But neither the Nova Scotian botanists nor those of New Brunswick know of it in their provinces, and in Maine it is confined to the southwestern corner of the state. Similarly, the maps show as Nova Scotians some other species which were unknown to Dr. Roland when he published his *Flora of Nova Scotia* in 1944: such species as *Salix nigra*, *Quercus macrocarpa* and *Tilia americana*, for example.

Many other mapped ranges in the Northeast are even more misleading. For the sake of simplicity, these will be noted in their order in the new book, although I am omitting mention of various native trees which are not included by the author.

EASTERN COTTONWOOD, *Populus deltoides*. The map (p. 124) shows a conspicuous blank extending from northeastern New York to Lake Ontario, thence southward across central Pennsylvania and all the region eastward. Had its author consulted House's *Annotated List of Ferns and Flowering Plants of New York* he could have read: "Frequently or locally abundant across the State from Lake Champlain west to Jefferson county (outside of the Adirondacks), Lake Ontario and Lake Erie. Increasingly common southward and westward, especially along the larger streams and river valleys."

BLACK WALNUT, *Juglans nigra*, is shown as having its northeastern limit extending from eastern Massachusetts across southwestern New Hampshire and southern Vermont to northeastern New York and thence westward and southward; but it is certainly not native in central and eastern Massachusetts and the acute botanists of Connecticut say: "derived from planted trees" but "Probably native at North Canaan" (in the northwestern corner of the state and near its native stations in extreme western Massachusetts). For New York House says: "northward to

Rensselaer, Washington and Saratoga counties, the Mohawk valley, Lewis and Jefferson counties and westward to Lake Erie. Rare in the Chemung and Tioga regions." That clips off much of northeastern New York.

Carya. Three species are mapped as extending into Maine. Hyland and Steinmetz, *Woody Pl. Me.*, consider only one of them indigenous, the others planted from outside the state.

RIVER-BIRCH, *Betula nigra*. The map shows a broad northeastern tongue extending from southwestern Connecticut to northwestern Massachusetts, thence, by way of central Connecticut, Massachusetts and southwestern New Hampshire, into the eastern half of the latter state. This is very misleading. There is no evidence of it in western and central Massachusetts nor in western New Hampshire. Its localization in New England is at the southwestern corner of Connecticut and (about 150 miles away) in northeastern Massachusetts and adjacent southeastern New Hampshire!

GRAY BIRCH, *Betula populifolia*. The northeastern portion of the map (p. 152) northeastward from a line extending from Prince Edward Island to the region of Montreal, seems to extend the species far outside its true range. There is certainly none of it on the Gaspé Peninsula, but its place is there taken by the technically very different *B. caerulea-grandis* Blanchard³, unknown to the writer of the new book.

Quercus. The northern range of *Q. alba* stops, so far as we know, in central Maine; it does not extend, as indicated on the map, into New Brunswick. *Q. stellata* is made to occur all over Massachusetts. Actually its northeastern limit is on Cape Cod.

WITCH-HAZEL, *Hamamelis virginiana*. The map shows it covering not only the Gaspé Peninsula of Quebec, where it does not occur, but extending out the North Shore (Côte Nord) to a point opposite the western end of Anticosti Island. Victorin, Fl. Laurent., gives its eastern limit in Quebec as the Isle of Orleans, more than 350 miles southwest of the unfortunately mapped northeastern limit.

AMERICAN MOUNTAIN-ASH, *Sorbus americana*. The map (p. 248) shows the northern limit of this really very distinct species to extend in a regular arc from southeastern Labrador to north-

³ For discussion of this species see Fernald in RHODORA, XX. 171-173 (1922).

western British Columbia, its southern limits in the West to be in New Mexico, Arizona and southern California. For a tree that is a most extraordinary range. Apparently the *Synopsis of the North American Species of Sorbus* by Dr. G. N. Jones in *Journ. Arn. Arb.* xx. 1-43 (1939) did not influence the author. Jones correctly gives the range of *S. americana* as "Newfoundland to northeastern Minnesota, southward across northern Illinois to eastern Tennessee and North Carolina". But Preston's range extends it 400 miles north of the known northern limit of the species and about 1700 miles northwest of the northwestern limit and about the same distance to the west of the southern limit in the Appalachian Mts. That would seem to be a big enough error; but look at the illustration (p. 249). In his key Preston correctly says "leaflets usually lanceolate and acuminate", but he (or his artist) shows short oblong-elliptic round-tipped leaflets such as never occur in *S. americana*, but are similar to those of the western *S. scopulina* Greene. Ho, hum!

DOWNY SERVICE-BERRY, *Amelanchier arborea*. Here, again, though with mapped range only 700-800 miles out of the way, the author of the new book has gone astray. I happen to know *A. arborea* since, in RHODORA, xliii. 563, t. 672, fig. 2 (1941), I pointed out the necessity to take up the name. *A. arborea* is a tree occurring from northern Florida to Louisiana and eastern Oklahoma, north to southwestern New Brunswick, southeastern and central Maine, southwestern Quebec, southern Ontario, northern Michigan and northeastern Minnesota. Its range was correctly stated and a good map published in Dr. G. N. Jones's *American Species of Amelanchier*, Ill. Biol. Monog. xx. no. 2, 36-39, map 5 (1946). Nevertheless, true to form, the new map shows it, incorrectly, extending to the extreme eastern corners of Newfoundland and the southern parts of the Labrador Peninsula, 700 miles out of the way.

BLACK HAWTHORN, *Crataegus Douglasii* (p. 252) has its eastern extension remarkably truncated at the western edge of Minnesota. In nature, however, it abounds in some areas of southern Ontario and northern Michigan.

COMMON CHOKE-CHERRY, *Prunus virginiana*. Here the author includes both the eastern and the western trees, about which there may be a difference of judgment; but the eastern tree (or

shrub) surely does not occupy a full half of the Labrador Peninsula, as he indicates.

MOUNTAIN WINTERBERRY, *Ilex montana*, is a characteristic upland species, occurring from western Massachusetts across New York State, thence south on the uplands to Georgia, Alabama and Tennessee. This chiefly montane range is not clearly brought out by a map (p. 290), showing a solid broad band extending eastward to eastern Massachusetts, eastern Connecticut, Long Island and the outermost coast from New Jersey to Georgia, etc. The wholly appropriate specific name really gives a clue.

WAHOO or BURNING BUSH, *Euonymus atropurpureus*. The astonishing map shows a northeastern tongue stretching from eastern New York across all of New England, except northern Maine, and on into New Brunswick; the eastern limit south of New York cutting across Pennsylvania to Ohio, thence southwestward. Surely the species is not native in New Brunswick nor New England, but it is certainly native in eastern Virginia. Enough said.

One could go on and on with other maps which sadly ignore or distort readily available facts, but my laments over the REDBUD, HOPTREE, STRIPED MAPLE, BLACK ASH, etc., would be much like the others.

These are enough, however, to show that the author of the very attractive new book has not very carefully scrutinized the ranges, but the deferred Spruces and Larches should be noted. The maps show the White Spruce, *Picea glauca*, and the Black Spruce, *P. mariana*, as both extending solidly northward to Cape Chidley (lat. 60° 33'), at the eastern entrance to Hudson Bay; but, as long ago as 1896, the great Canadian explorer of the Labrador Peninsula, Low,⁴ pointed out that "The tree-line," after skirting Ungava Bay, "turns southeast, then southward [not northeast, then northward] to the neighborhood of Hebron, in latitude 58°"; and (pp. 34, 35) Low pointed out that on the Labrador Peninsula the White Spruce falls far short of this northern limit of trees. Cape Chidley, however, would seem from the new book to be only a way-station in the northward range of *Conifers*. Look on p. 44, where TAMARACK, *Larix laricina*, is imagined to extend way across to Baffin Island and

⁴ A. P. Low, Geol. Surv. Can. Ann. Rep. n. s. viii. 31 L (1896).

then north to the Arctic Circle! Polunin, in his *Botany of the Canadian Eastern Arctic*, i. (including Cape Chidley) says (p. 39): "Gymnospermae are unknown in our area", and nothing suggesting a tree is known on Baffin Island!

I have, naturally, not checked on the regions with which I am not somewhat acquainted or about which I have learned from authoritative sources; but when I read, under the heading "TROPICAL FOREST REGION," that "In . . . extreme southern . . . California are forests made up largely of tropical species", I naturally wonder and at once turn to Abrams's masterly *Phytogeographic and Taxonomic Study of the Southern California Trees and Shrubs*, Bull. N. Y. Bot. Gard. vi. no. 21 (1910). Abrams seems not to have realized that his flora was "largely of tropical species" and a check on the ranges of Mexican *Pinaceae* recorded in Standley's *Trees and Shrubs of Mexico* shows only one or two Californian species which push down to the Tropic of Cancer and these only on the mountains, well above the tropical zone. Simply because many typical plants of the eastern United States are now being found on mountains of Mexico south of the Tropic of Cancer, we do not call the Alleghenian forest a tropical one. Along the eastern margin of the United States, particularly on or near the Coastal Plain, at least 175 of the indigenous species extend northward to Virginia, Delaware, New Jersey, Long Island or southern New England (or even Nova Scotia) from the West Indies, Mexico or Central America. But we do not, on this account, call the flora of the northeastern border of the United States a really tropical one. There subarctic, Canadian, north-temperate, western European, isolated south-temperate, tropical and other elements more or less commingle, the result of dramatic geographic changes in the topography and past connections of the region. The geographic classification of the floristic elements of this and most other large areas is not a simple problem.

Chaney, who certainly knows the history of California trees, places the presence of a subtropical forest in California at fifty million years ago, not in present time: "A study of the history of the earth and its life indicates that there has been a gradual cooling and drying of the climate since the days, fifty million years ago, when the redwood lived in Alaska and when a sub-

tropical forest covered California"—Chaney, *Redwoods of the Past*, 4 (Pub. Save-the-Redwoods League, 1941). It hardly seems possible that the recent statement started there.

Enough has been noted to make evident the need for much greater care and scrupulous checking before attempting to instruct a public, which does not know accuracy from inaccuracy. The attractive book, which by the mere chance that a copy of it suddenly appeared on the table near me, is as good an example as are some other grossly inaccurate ones which are in vogue as authoritative books on phytogeography. This severe criticism is made in all friendliness, and, if a new edition is ever called for, it is to be hoped that it will be prepared with more attention to the actual ranges of the trees discussed.

RHODODENDRON MAXIMUM AT MEDFIELD, MASSACHUSETTS.—In July 1950, I visited the Rhododendron Reservation in Medfield, Massachusetts, and found that conditions there had greatly improved and that the shrubs had spread and were flowering very well.

The Trustees decided there was too much water in the swamp, and drained off the surplus. It also seemed that the shade was too dense, so a number of trees were removed to let in more light, but not too much. As a result of these corrections the shrubs seem to have taken on new life and bid fair to rival the station at Fitzwilliam, N. H.—CLARENCE H. KNOWLTON, Hingham, Massachusetts.

GOODYERA TESSELATA IN RHODE ISLAND.—The early lists of New England plants mention *Goodyera repens* as occurring in the State of Rhode Island, but make no mention of the occurrence of *G. tessellata* in this State.

Before the destructive hurricane of 1938, I found in Rhode Island two flourishing colonies of a Rattlesnake-plantain whose flower-stalks were small and slender, averaging about 6" tall, and all without exception with distinctly one-sided racemes. Both colonies were growing under pines in rather damp situations. I believed these to be *Goodyera repens*. The hurricane and subsequent clearing up of damaged trees completely obliterated both